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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,479	07/18/2001	Gregory Rose	10559-450001 / P10767	1628
20985	7590	08/23/2005	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			CAO, CHUN	
			ART UNIT	PAPER NUMBER
			2115	
DATE MAILED: 08/23/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,479

Applicant(s)

ROSE ET AL.

Examiner

Chun Cao

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 6, 7, 9, 10, 12 and 14-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-32 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6, 7, 9, 10, 12 and 14-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 2, 4, 6, 7, 9, 10,12 and 14-32 are presented for examination. Claims 28-32 are newly added claims.
2. The text of those applicable section of Title 35, U.S. Code not included in this action can be found in the prior Office Action.
3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The current title is imprecise.

The following title is suggested: "A power saving circuit has an input line coupled to an external host and a keeper to hold the line in a weakly held state".

4. Claims 1, 2, 4, 6, 7, 9, 10,12, 21 and 23-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitations "the state of the external signal line" in line 8; "the control" in line 9; "the control" in lines 9-10. There are insufficient antecedent basis for those limitations in the claim.

- Claim 6 recites the limitations "the output buffer stage" in line 3; "the state" in line 3.
3. There are insufficient antecedent basis for those limitations in the claim.

Claims 2, 4, 6, 7 and 28 are rejected because they incorporate the deficiencies of claim 1.

Claim 9 recites the limitation "the inverse" in lines 9-10. There is insufficient antecedent basis for the limitation in the claim.

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Claim 14 recites the limitation "the state" in line 2. There is insufficient antecedent basis for the limitation in the claim.

Claims 10, 12, 14-16 and 29 are rejected because they incorporate the deficiencies of claim 9.

Claim 21 recites the limitation "the circuitry" in line 1. There is insufficient antecedent basis for the limitation in the claim.

Claim 23 recites the limitations "the state" in line 2; "the SLEEP signal" in line 3. There are insufficient antecedent basis for the limitations in the claim.

Claim 24 recites the limitation "the PAD signal line" in line 7. There is insufficient antecedent basis for the limitation in the claim.

Claims 25-27 are rejected because they incorporate the deficiencies of claim 24.

5. Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bland et al. (Bland), U.S. patent no. 5,517,650 in view of Bacigalupo (Bacigalupo), US patent no. 6,448,812.

Bland and Bacigalupo are prior art references cited in prior office action.

As per claim 24, Bland discloses an apparatus [fig. 4] comprising:

a signal line that is driven by an internal circuit or an external device [fig. 5, col. 6, line 62-col. 7, line 2];

a keeper stage to hold the signal line in a weakly held state that represents the last in time state of the signal line as driven by the external circuit [col. 7, lines 3-15].

Bland does not explicitly disclose a keeper stage to hold the signal line in a weakly held state that represents the last in time state of the signal line as driven by the external circuit after the internal circuit is powered down.

Bacigalupo discloses a keeper stage to hold the signal line in a weakly held state that represents the last in time state of the signal line as driven by the external circuit after the internal circuit is powered down [fig. 2; col. 4, lines 31-col. 5, line 26; col. 5, lines 46-56], furthermore, Bacigalupo discloses that a processor [microprocessor] is awakened when the external device changes the weakly stored state of the signal line after the powering down [col. 4, lines 1-10; col. 5, lines 46-56]. It would have been obvious to one of ordinary skill in the art at time the invention to combine the teachings of Bland and Bacigalupo because they are both directed to power management system, and the specify teachings of Bacigalupo stated above by having weak pull-up and pull-down devices to held a signal line in a weakly held state would increase the power consumption of Bland system by being capable of controlling power management system.

As per claim 25, Bacigalupo discloses that the keeper stage comprises at least one controllable weak pull-up device and at least one controllable weak pull-down device [fig. 2, col. 3, lines 51-61; col. 4, lines 18-20].

As per claim 26, Bacigalupo discloses a keeper stage to hold the signal line in a weakly held state that represents the last in time state of the signal line as driven by the external circuit after the internal circuit is powered down [fig. 2; col. 4, lines 31-col. 5, line 26; col. 5, lines 46-56].

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As per claim 27, Bland discloses that the weakly held state can overcome by either the internal circuit or the external device [col. 6, lines 52-61; col. 7, lines 3-15].

6. Claims 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Bland et al. (Bland), U.S. patent no. 5,517,650 and Bacigalupo (Bacigalupo), US patent no. 6,448,812.

As per claim 17, AAPA discloses an apparatus comprising:

A USB device coupled to a USB host through an external signal line, the USB device comprising: a PAD signal line [page 1, lines 7-23].

Bland discloses a device [fig. 4] comprising:

a PAD signal line connectable to an external signal line [fig. 5, col. 6, line 62-col. 7, line 2] ;

a keeper stage to hold the PAD signal line in a weakly held state responsive to changes in a state of the external signal line [col. 7, lines 3-15].

AAPA and Bland do not explicitly disclose a keeper stage to hold the PAD signal line in a weakly held state responsive to changes in a state of the external signal line that occur after a power down.

Bacigalupo discloses a keeper stage to hold the PAD signal line in a weakly held state responsive to changes in a state of the external signal line that occur after a power down [fig. 2; col. 4, lines 31-col. 5, line 26; col. 5, lines 46-56], furthermore, Bacigalupo discloses that a processor [microprocessor] is awakened when the external device changes the weakly stored state of the signal line after the powering down [col. 4, lines 1-10; col. 5, lines 46-56]. It would have been obvious to one of ordinary skill in the art at

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time the invention to combine the teachings of AAPA and Bland and Bacigalupo because they are directed to power management system, and the specify teachings of Bland and Bacigalupo stated above by having a keeper stage, weak pull-up and pull-down devices to held a signal line in a weakly held state would increase the power consumption of AAPA's USB device by being capable of controlling power management of the USB device.

As per claim 18, Bland discloses that the weakly held state is the last in time state of the external signal line [col. 7, lines 12-14].

As per claim 19, Bacigalupo discloses that the keeper stage comprises at least one controllable weak pull-up device and at least one controllable weak pull-down device [fig. 2, col. 3, lines 51-61; col. 4, lines 18-20].

As per claim 20, Bacigalupo discloses that control circuitry to disable the at least one controllable weak pull-down device if the at least one controllable weak-pull up device is enabled, and to disable the at least one controllable weak pull-up device if the at least one controllable weak pull-down device becomes enabled [col. 3, lines 62-67; col. 4, line 45-col. 5, line 11].

As per claim 21, Bland discloses that a control circuitry is implemented in an integrated circuit [figs. 2, 4]. Bacigalupo discloses that a control circuitry is implemented in an integrated circuit [fig. 2].

As per claim 22, Bacigalupo discloses that the controllable weak pull-up device and the controllable weak pull-down device are square devices [col. 3, lines 53-54].

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As per claim 23, Bland discloses that a SLEEP signal line and control circuitry to disable and enable the keeper stage based upon a state of a SLEEP signal [col. 6, lines 52-61].

Allowable Subject Matter

7. Claims 1, 2, 4, 6, 7, 9, 10, 12, 14-16, 28 and 29 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

8. Claims 30-32 are allowed over prior art.

9. Applicant's arguments filed on 6/24/2005 have been fully considered but are not persuasive in view of new ground(s) rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun Cao whose telephone number is 571-272-3664.

The examiner can normally be reached on Monday-Friday from 7:30 am-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is 571-272-2100.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Chun Cao', with a stylized, cursive script.

Chun Cao

Aug. 17, 2005